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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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COUNTRY	USSR (Moscow Oblast)	REPORT	
SUBJECT	Aircraft Development Activities at Pilot Plant No. 1 in Podberezye	DATE DISTR.	20 October 1954
		NO. OF PAGES	8
DATE OF INFO.		REQUIREMENT NO.	RD
PLACE ACQUIRED		REFERENCES	

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THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
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1. Source believed that the purpose of Pilot Plant No. 1 in Podberezye was primarily to acquire knowledge and experience from the deported German experts and only secondarily to develop aircraft. He understood that Pilot Plant No. 1 did not take an important part in the general development program by filling a specific quota. There was little proof that aircraft developed at Podberezye were actually produced, but source believed that a small series of the P-131 was built.

2. Pilot Plant No. 1 was subdivided into OKB I under Graduate Engineer B.C. Baade, OKB II under Graduate Engineer Roessing (fnu), and a central laboratory for material analysis which was required for the analysis of insufficiently marked Soviet materials. The institute was adequately equipped for all kinds of tests to determine tensile, compression, and torsion strengths. A well-equipped physical laboratory operated under the supervision of Dr. Geertz (fnu).[1] The position of the Soviet plant director was held successively by seven persons, of whom [redacted] Izotov (fnu), the first in line, and Pirilovskiy (fnu), who was the last director. The Soviet plant director, whose work was more

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of a supervising and administrative nature, had German assistants to coordinate the activities. To avoid suspicion of having a pro-German attitude, the Soviet personnel were correct and reserved to the German experts. Except for official events when they were on some sort of duty, the Soviets avoided talking to the Germans in public. Even those Soviets who were rather friendly at the plant avoided contact with their German colleagues in the street.

3. In late 1951, when the mission of the German experts was almost completed, the production of Pilot Plant No. 1 was converted to fuselage parts for a helicopter, e.g., conical light metal tubes, about five meters long and one meter in diameter, set at intervals of three to four mm. These reflectors were constructed with utmost care and the bending was precisely checked and had to be done over, even if it showed only small deviations. This work was mostly accomplished by female personnel. Shortly before the Germans left, the plant started to produce perambulators, a typical intermediate step in the production process, which was usually followed by a basic change. As was told at the plant and indicated by Soviet statements, Zavod I would produce turbojet engines. Several days before the Germans left, crates with parts of turbojet engines arrived from an unknown location. No information was available on the expected capacity of the plant.

4. The development of the P-131 was continued with three airframes, the V-1, V-2, and V-3 experimental models of the Ju-287 which had been brought to Podberezye. V-1 became the first model of the P-131, which made nine or ten experimental take-offs at Ramenskoye airfield in May 1947; V-2 had previously crashed in Dessau; and V-3 was at first salvaged for spare parts used for the construction of the P-131. Three days before the P-131 was to be flown in the big Tushino airshow, the slats failed to extend before landing. This was probably caused by the poor condition of the V-1, which, although designed for a maximum speed of 860 km/h, was not released for speeds above 600 km/h. When the safe landing of the P-131 proved that the maneuverability of the aircraft was not affected at low speeds, the P-140 and the P-150 were designed without slats, which had been installed on the P-131 to prevent the tearing off of boundary layers at low speeds. Further experiments with the P-131 involved the power plant and various types of suspensions for the engine nacelles. On 12 October 1947, the testing program at Ramenskoye was finished, the German personnel returned to Podberezye, and Soviet experts dismantled the aircraft for the transport back to Podberezye. During winter 1947-1948, the aircraft was subjected only to minor improvements. In late April 1948, the P-131 (V-1) and the V-3 were taken to Teplyy Stan airfield, about 30 kilometers south of Moscow. After the first take-off, the V-3 proved to be in a much better condition and was taken as the basic development model for the P-140, and the P-131 was salvaged for spare parts. In August 1948, the P-131 flight testing program was officially completed; the blueprints, ready to be used for series production, were shipped by trucks to an undetermined destination.

5. Source concluded from the Soviet system of giving bonuses for the individual development stages that the P-131 was series-produced. According to the Soviet bonus system, the first bonus was given after the designing work was completed, the second one after the aircraft was accepted, and the third when it was put into mass production. The bonuses for the P-131 had been received, partly in Dessau and partly in Podberezye. During the winter of 1948, funds for overtime work were unexpectedly available at a time when they were not required, although no money had been available when it was urgently wanted. Since these funds were exhausted after two months, it was suspected that this money was the third bonus [redacted] 25X1
[redacted] had to be earned again in overtime work. It was generally assumed that most of the first and second bonuses went into unauthorized channels. [redacted] 25X1
[redacted] 25X1
[redacted] during the 25X1

summer of 1949, the P-131 was being mass-produced in an underground aircraft plant in Novosibirsk at an output of one aircraft per day. [redacted] 25X1 description of the P-131 with its swept forward wings and six turbojet engines. Source believed that the Jumo-004, which was the power unit installed in the P-131, was being quantity-produced. According to unmistakable features, including the typical noises of the Riedel-type starter unit, the shape of the exhaust cone, and the extension of this cone during take-offs, Yak-15s frequently landing at Teplyy Stan were believed to be equipped with Jumo-004s.

6. In August 1948, the P-140 took off for the first test flight at Teplyy Stan airfield. [redacted] in September 1948, only taxiing tests were performed. On one of these runs the aircraft almost crashed at the end of the runway because Engineer Fritz Freytag, engineer in charge, had ordered the P-140 to accelerate over more than half the length of the runway and to speed up to more than 240 km/h. These experiments were intended primarily to test the Mikulin turbojet engines. Source merely knew that these engines were not fitted with an afterburner. [redacted] 25X1 The flight tests were discontinued during the winter and resumed at Borki airfield in the spring of 1949. Most of the test flights were performed at high speeds; the maximum speed achieved (at an unknown altitude) was 930 km/h. [redacted] 25X1 there were difficulties with the governors of the Mikulin engines. At Soviet request, efforts were initiated to design a pressurized tail gunner's station equipped with a twin-barrel gun to be shifted about 90 degrees to each side. It took a long time to convince the Soviets that firing traversely to the direction of flight would be of no effect in such a fast aircraft. The two versions of the P-140 included the P-140B, a bomber, and the P-140R, a long-range aircraft with auxiliary tanks. These tanks were installed in the bomb bay after experiments with wing tip tanks had failed. The experiments had failed because of vibrations at the wing tips, because the center of effort was located too far forward, and because the center of effort shifted when the tanks emptied, which made trimming extremely difficult. No performance data were available of either version of the P-140. In summer 1949, the testing program ended abruptly because, source believed, the Soviets had learned all they were interested in.

7. Information obtained on the history of the P-150 was only fragmentary. Although the P-150 was definitely an independent development of Graduate Engineer B.C. Baade, the comment of the TsAGI Institute on the aircraft stated that the "aircraft showed all the typical characteristics of good Soviet designing." Graduate Engineer Baade rejected all requests for changes received from TsAGI Institute, except for the negative dihedral of the wings, which was demanded by TsAGI after wind tunnel tests when the aircraft had already been completed. Dr. Backhaus (fnu), who did the required recalculations, and Graduate Engineer Waltzel (fnu), the designer of the original wing, stated that the redesigning of the wing was rather difficult. The modification was suggested in order to reduce the serious rolling and yawing of the aircraft. Source learned that the original negative dihedral of one and a half degrees was to be increased to three degrees and that, during the same period, the upper side of the wing was provided with an elevation. [redacted] 25X1 The main disadvantage of this modification was the fact that the wing tips almost touched the ground during landing.

8. The P-150 was powered by two improved versions of the Soviet-built Nene with afterburners which were suspended from under the wings by cowled pylons leading slightly forward. Each power plant had a thrust of 3,400 kgp without, and 4,000 kgp with, afterburner. The maximum diameter was 1.60 meters; the length was not remembered. The aircraft carried a crew of four in the cockpit, including the pilot, navigator, radio operator, and gunner, who also was flight mechanic. The wing span was about 24 meters and the wing area about 52 sqm (sic).

The gross weight was about 55 tons. The turbojet engines were fueled with kerosene with a purity degree of 0.82 to 0.84, usable to a minimum temperature of 55 centigrades below zero. The maximum speed at an altitude of 6,000 meters was 1,030 km/h. At altitudes below 6,000 meters, the aircraft had to be flown at lower speeds. The landing speed was about 2,000 km/h (sic), [redacted] 25X1 25X1 the extendable Seppeler Propeller functioning as emergency power generator be still in operation at this speed. The service ceiling was between 11,000 and 13,000 meters; the radius of action was 2,000 km with load, a range which similar Soviet types allegedly could not reach unless flying without load. The flight endurance was about five hours, which was concluded from the fact that the program of the servo control system was set for a period of five hours. Source stated that the data heard in Podberezye varied frequently.

9. The wings, a development of Graduate Engineer Waltzel, were designed with supporting top and bottom chord of welded sheet metal fitted with inserted spacers lacking spars and ribs. There were no fuel tanks installed in the wings. The swept-back angle of the leading edge was 35 degrees. The wings slightly tapered toward the rounded wing tip caps. The wing profile had its maximum thickness in the center; the leading edge was comparatively thin. The full-view pressurized compartment was fed with air from the fourth stage of the axial flow compressors. The entire cockpit was jettisonable; no ejector seats were installed. The emergency exit in the compartment bottom would be of little value in case the aircraft were upside down when the crew had to bail out. The P-150 was fitted with a dual-wheel tandem landing gear. In order to give the aircraft the required angle of incidence, the rear landing gear retracted slightly during the take-off run. The front gear could be steered. In Shulshenko's new publication Aircraft Designs, published in 1953 by Oborongiz in Moscow, a front and a side view of the P-150 with the original wing shape were given as a first example for a landing gear arrangement. Source [redacted] 25X1 believed that a translation into German was planned. [redacted] 25X1 25X1 [redacted] Graduate Engineer Boris von Schlippe [redacted] worked on calculations for 25X1 the afterburner which would provide an increase of power of about 19 percent. The installation of the afterburner, referred to as "bag", extended the length of the power unit about one meter. It was planned that, with an unchanged outer diameter, the exhaust area be adjusted by pressing the "bag" to elliptical shape. This problem caused a disagreement [redacted] 25X1 [redacted] 25X1 The blueprints specified an exhaust aperture with a diameter of 520 mm. The exhaust aperture of the afterburner was to be about 30 percent wider. The temperature of the exhaust gases was given as 1,600° C. Hot air for the deicing system of the wings was to be taken from the fourth of eight axial compressor stages and directed to the leading edges through distribution tubes and mixing nozzles. The heating air was to escape to the rear through leaks in the wing tip caps. The "warm" fire extinguishing system was to incorporate a powder pellet which, when ignited, would press tetra (sic) into the burning power unit. This system had allegedly great advantages compared with the cold system utilizing carbon dioxide foam. [redacted] 25X1 The densely riveted upper half of the fuselage served as main fuel tank. The armament included a 23-mm twin-barrel tail gun which was remote-controlled from the cockpit and adjusted by means of an extendable periscopic gunsight. The bomb sight was an improved version of the Norden type sight. A radar set was available. [redacted] various 25X1 types of radio sets had been installed for experimental purposes. No antennas were visible externally. The instruments were reportedly similar to the German instrument system. In 1952, the instrument board was fitted with a

control panel, allegedly for a new type of automatic three-axle control. The servo control system operated hydraulically. [redacted] 25X1
[redacted] testing program of the servo control system. It was 25X1
planned that the control rods and the oil pumps be tested under 5.8-kg and 18-kg pressure regarding the full rudder displacement. [redacted] 25X1
[redacted] Later it was learned that flight tests revealed difficulties with this servo control system, which, because it could not be moved to neutral position, always left a rudder displacement (sic) at an angle of one-fourth of a degree. In gusty weather it was, therefore, impossible to determine whether the aircraft was out of trim because of a gust or becuase of the servo control. 25X1
[redacted] The tail was fitted with two square flaps which were extended as landing brakes. No information was obtained to indicate that the experiments with ribbon brake parachutes which had been conducted with the P-140 were performed with the P-150, or that rockets or deflection of the exhaust jet were utilized for braking purposes. [redacted] 25X1

10. In summer 1952, the P-150 was dismantled for truck shipment near [redacted] 25X1
place, which was referred to as a "hotel", and one night the P-150 was sent via Moscow to Ramenskoye airfield. In May 1953, the testing program of 16 flights ended with a crash landing by the Soviet pilot, who had flown all the test flights and who was usually accompanied by a German who recorded the data obtained. The conversation between the Soviet pilot and the German co-pilot prior to the crash landing was monitored and proved that, although he had been warned, the Soviet pilot, who apparently was still under the influence of alcohol consumed or May Day, landed in the direction of the low evening sun. The aircraft pancaked and hit the ground very hard, seriously damaging the landing gear, especially the rear wheel, and the wing roots. The German experts stated that repair was impossible. Since the flight testing program had been completed except for some problems with the power plants, the repair of the P-150 was cancelled. Graduate Engineer Baade, who did not want to give up his development and made an effort to repair the aircraft, provoked opposition from all German experts, who feared that the repair might keep them in the USSR for another three years. [redacted] 25X1
[redacted] All German experts in Podberezye believed that P-150 was being mass-produced, especially as the Soviet development of a related aircraft had failed, having become too heavy to carry any load.

11. [redacted] 25X1
[redacted] the Soviets kept well informed on Western developments of fighter aircraft. To avoid the effort and expense of their own basic research activities, the Soviets selected the types for further development which would meet their requirements and which could be produced with the material available. [redacted] 25X1
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[redacted] During the same summer, single-engine jet fighters approached Borki airfield at night. Podberezye was located a few kilometers from the field, in the approach lane to the field. [redacted] precise 25X1
approaches even in bad weather, and with a ceiling of only 100 meters [redacted] 25X1
aircraft coming in for landings at intervals of approximately 1,000 meters. Swept-back wings observed in the moonlight indicated MIG-15s. No information was obtained on the LA-17 or on new versions of the MIG-15.

12. No information was obtained on Soviet plans and intentions regarding the development of a strategic bomber force. Source believed that, in spite of its insufficient range, the P-150 would be used as a strategic bomber. According to Soviet tactics, it would probably be used as an atom bomb carrier until a suitable aircraft model was available, even if it were impossible for the aircraft to return. The Il-28 was reportedly the only mass-produced jet bomber. [redacted] 25X1

[redacted] 25X1 he believed that the P-150 was the largest aircraft being developed in the USSR and the Soviet -built B-29 the largest aircraft being produced. During the summer of 1947, 10 to 12 Soviet-built B-29s were seen at Ramenskoye airfield. These aircraft apparently had difficulties with propellers, which showed strange deformations or were broken off, and were constantly being worked on. Regarding the Soviet development of rivals to the P-140, source stated that, in the summer of 1950, an Il-28 was spotted flying over Podberezye. It was said that two years were required to redesign the rudder assembly, which had caused a speed limit of 450 km/h; and that, after the remodeling, the aircraft had become a little too heavy for the power plant. The original layout of the rudder assembly was not known. The alleged Soviet rival development to the P-150 was, according to rumors, too weak, particularly at the tail; there were heavy vibrations of the tail section when the aircraft increased speed. It was generally known in Podberezye that the required reinforcements were equal in weight to the calculated load, and that Tupolev, the reported designer of this aircraft, was in disgrace because of this and other failures.

13. Regarding scientific potential, source believed that the Soviets were not yet capable of keeping abreast of Western developments; he felt that, as a result of the liquidation of the Russian intelligentsia during the revolution, there was still a lack of qualified personnel. The few outstanding scientists available were urgently needed for the evaluation of foreign material rather than for independent research and development activities. Mistrusting people with a good general education, the Soviets trained their technical and scientific personnel in very limited fields only. [redacted] Soviet engineers 25X1 who, although qualified to work in more technical fields, were restricted to their specific work and never discussed other technical problems unless no other Soviets were around. A typical example of the drawback of this "narrow gauge training" was that of Graduate Engineer Alekseyev (fnu), who, as the second in a line of five or seven consecutive chief designers at Pilot Plant No. 1, completely failed in the attempt to design a twin-jet fighter. Because it was easier to rivet, he ordered that a light metal similar in appearance to duraluminum be used for parts of the P-140 outer skin, which had to be removed again. The TsAGI Institute was equipped at least with one modern wind tunnel to meet the latest technical requirements. Professor Bock and Engineer Theo Schmidt, the latter referred to as "Flatter Schmidt", mentioned the good technical qualifications of the Soviet personnel working at that institute. [redacted] TsAGI was primarily an industrial advising and supervising institute rather than a research institute, because the model 25X1 of the P-150 had to be submitted to TsAGI after the aircraft was completed. No information was obtained on the wind tunnel. Source believed that such Soviet chief designers as Ilyushin and Tupolev had their own designing offices working on rival developments and that they were also being supervised by TsAGI. It was learned that Professor Bock had worked for some time on calculations on propellers. [redacted] 25X1

14. [redacted] 25X1 poor interpretations of foreign material and the unfamiliarity that some of the authors had with the technical fields involved. The Soviet standard publication on aerodynamics showed serious gaps, inasmuch as pages of formulas and calculations ended abruptly when they started to make sense. This was caused by the Soviet theory of specific training as well as by the author's incapacity. [redacted] 25X1 [redacted] When the German experts in Podberezye were offered 25X1 bonuses for scientific publications, Graduate Engineer Waltzel (fnu) forwarded a sensational study on thin sheet metal procedures and Engineer Otto Richter submitted a draft for a publication on measuring methods at high-speed flying. After a long period, Richter received 100 rubles and a note telling him to

write two more studies in continuation of his first work. Richter, who, in the meantime, had found some mistakes in his first draft, was working on the corrections when he got hold of a Soviet publication by Dr. Chauskiy (fnu) on the same subject containing identical errors. Dr. Chauskiy had copied the work and received the 5,000-ruble bonus. Although he was aware of the danger in generalizing [redacted] more than 70 percent of the 25X1
results obtained by Soviet science and research were based on foreign activities and that, for a couple of years, Soviet scientists will have to utilize ideas and results obtained by Western countries in the fields of aerodynamics, aircraft, and aircraft-engine designing.

15. Chief Designer Alekseyev's attempt to use another light metal alloy instead of duraluminum for the outer skin was the only metallurgical experiment observed. The material used instead was designated AM-95, WM-95 (sic; VM-95?), or DM-95. The Soviets occasionally used welding instead of riveting. No details were available on the methods and advantages. Synthetic materials and glass were not being used at Podberezye. Source noticed that the Soviets used an excellent finishing varnish for plywood aircraft wings. One broken wing which had been lying outside a workshop for more than a year did not show any damage to the varnish. The P-150 wing was supported by the top and bottom chord, made of strong sheet metal. Since the TsAGI Institute did not object to Graduate Engineer Waltzel's design of the P-150 wing, it was concluded that the equipment required for the production of such wings was available in the USSR. [redacted] 25X1

16. [redacted] 25X1
the Soviets used anti-G suits [redacted] the Soviets, compared with the West, were only marginally interested in arctic flying 25X1
and that this problem never arose in connection with the P-150, because an additional version would have been constructed otherwise. No special measures for winter flying were observed at any of the airfields. Source believed that the Soviets would improvise if required. They did, for instance, when they had no cranes at Teplyy Stan airfield to exchange the power units of the P-140. The mechanics loaded the two turbojet units on two trucks, moved them carefully under the wings, retracted the landing gear until the wings touched the engines, mounted the engines, and extended the landing gear again. All airfields observed had concrete runways. During the first landings of the P-131 and P-140, fragments of rubber, including several layers of cord, were torn from the tires. Since there was no other way to solve this problem, the aircraft had to land on the sodded landing field for the remaining test flights, which they successfully did. [redacted] 25X1
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Information on a landing gear wreckage in Lukovitsy was not obtained. [redacted] during the landing after the first test 25X1
flight, the P-131 bent the front shock-absorber leg about 90 degrees because a steering gear was reversely connected. Except for auxiliary fuel tanks no measures were observed to have been taken which might have extended the range of fighter units. [redacted] 25X1
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1. [redacted] Comment: Dr. Geertz , was previously reported as chief of the office for measuring techniques in Podberezye. 25X1